





The publications listed below form a part of this section to the extent referenced:

ASTM INTERNATIONAL (ASTM)

ASTM D 635	(2003) Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Self-Supporting Plastics in a Horizontal Position
ASTM E 84	(2003) Standard Test Method for Surface Burning Characteristics of Building Materials

### 1.3 SUBMITTALS

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NOTE: Review submittal description (SD) definitions in Section 01 33 00 SUBMITTAL PROCEDURES and edit the following list to reflect only the submittals required for the project. Submittals should be kept to the minimum required for adequate quality control. Include a columnar list of appropriate products and tests beneath each submittal description.

A "G" following a submittal item indicates that the submittal requires Government approval. Some submittals are already marked with a "G". Only delete an existing "G" if the submittal item is not complex and can be reviewed through the Contractor's Quality Control system. Only add a "G" if the submittal is sufficiently important or complex in context of the project.

For submittals requiring Government approval on Army projects, a code of up to three characters within the submittal tags may be used following the "G" designation to indicate the approving authority. Codes for Army projects using the Resident Management System (RMS) are: "AE" for Architect-Engineer; "DO" for District Office (Engineering Division or other organization in the District Office); "AO" for Area Office; "RO" for Resident Office; and "PO" for Project Office. Codes following the "G" typically are not used for Navy, Air Force, and NASA projects.

Submittal items not designated with a "G" are considered as being for information only for Army projects and for Contractor Quality Control approval for Navy, Air Force, and NASA projects.

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The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES in sufficient detail to show full compliance with the specification:

## SD-02 Shop Drawings

Shop drawings to indicate location, dimensions, size, face materials, core construction, finishes and elevations for each door required. Mortises shall not be cut out of the stile structure of jamb.

## SD-04 Samples

Provide samples of each type of door construction, face material and finish required.

### 1.4 PRECONSTRUCTION REQUIREMENTS, DELIVERY AND STORAGE

Prior to the commencement of construction submit the following for review and approval:

Shop drawings  
door construction samples  
face material and finish samples

All materials shall be delivered to the site in sealed, undamaged containers fully identified with the manufacturer's name, project number, the tag location, the door type, color and weight. The doors and frames must be shipped in crates. Store materials in original cartons, on edge in such a way to prevent falling or damage to face, corners and edges. Replace defective or damaged doors or frames at no expense to the Government.

## PART 2 PRODUCTS

### 2.1 DOORS

Doors shall be made of fiberglass reinforced plastic using resins tailored to a specific corrosive environment and have a fiberglass content of 25% by weight. The doors shall be flush construction, having no seams or cracks. All mortises shall be molded in at the factory. The doors shall be 1-3/4" thick with a 15 mil,  $\pm$  3 mils, color gel coat and have an R-factor of 12. Secondary painting over pultrusions to achieve color is not acceptable.

Stiles and Rails shall be constructed starting from the outside toward the inside of a 15-20 mil gel coat of the color specified followed by a matrix of at least two layers of 1.5 ounce per square foot of fiberglass mat, plus one layer of fiberglass cloth. The stile and rail shall be molded in one continuous piece to a U-shaped configuration and to the exact dimensions of the door(patented). In this matter there will be no miter joints or disparate materials used to form the one-piece stile and rail. Pultrusions will not be acceptable for stiles and rails as (1) the color gel coat is not an integral part of the structure (it must of necessity be applied as paint when the structure is assembled), and (2) mortises must be cut into the pultrusions, thus weakening the pultrusions by removing as much as two-thirds of its thickness and (3) the practice of mitered joints in pultrusions leave access areas for penetration of contaminants to the inside to the door.

Door Plates shall be molded in one continuous piece, starting with a 15-20 mil gel coat of the color specified, integrally molded with at least two layers of 1.5 ounce per square foot fiberglass mat and layer of 16 ounce per square yard unidirectional glass roving.

#### Reinforcement:

Adequate reinforcing and compression members shall be used to accommodate surface hinges, closures, locksets, kickplates, push or pull plates. When engineering considerations dictate, mild steel is buried in the fiberglass matrix to provide enhanced screw-holding power. In no case should screws be used into fiberglass matrix to provide holding for hinges, locks or closures or any structural attachment.

Thrubolting is recommended for attachment of hinges and closures inasmuch as the strength of thrubolting is five to six times as great as edge attaching with screws. When thrubolting is to occur, compression member is to be located which will provide memory and resistance to the torque of thrubolts.

All voids between the door plates shall be completely filled with the equivalent of 4-6 pounds expanded polyurethane foam, having a flame spread of 25 or less per [ASTM E 84](#). A phenolic coated kraft honeycomb may be substituted or urethane foam.

Flame Spread: All reinforcing resins shall contain a halogenated additive of co-reactant plus Antimony Trioxide to achieve a flame spread of 25 or less per [ASTM E 84](#) and shall be self-extinguishing per [ASTM D 635](#).

#### Frames:

Frames shall be similar to the doors in construction and materials except the frames shall be solid fiberglass. The stop and frame will be molded all in one piece. The frame shall be integrally gel coated to the customer's color when molded. Mortises will be molded in. It is not permitted to rout in mortises or remove any material from the head or jambs to provide mortises.

Reinforcement for mounting hinges, closures, etc., shall be of mild steel plates strategically located and buried in the resin-glass matrix so they will not be exposed to the elements.

The jamb shall be flat on the backside (against the opening) and uniform in thickness so as to provide a solid, uniform surface against the wall opening. No wood blocks or spacers are permitted.

Louvers shall be identical to the doors in construction and materials. The fins shall be solid fiberglass. Location of louvers shall be as specified on drawings.

All transoms shall be identical to the doors in construction, materials, thickness and reinforcement. Location of transoms shall be as specified on drawings.

All hardware where applicable (locksets, hinges, closures, etc.) shall be installed at the door manufacturing plant. The hardware manufacturer's warranty shall be included with the hardware installation.

The color of the door or frame shall be integrally molded as the part is made and as indicated on the drawings.

Threshold

PART 3 EXECUTION

3.1 INSTALLATION

Installation shall be in strict compliance with manufacturer's written instructions using non-corrosive materials and methods.

Erect frames plumb and in true alignment; rigid and securely anchored in place. Install doors to achieve intended functional operation and appearance.

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